REMARKS

Claims 1, 23, and 34 have been amended. Claims 12-22 were previously canceled. Claims 1-11 and 23-40 remain pending. Applicant reserves the right to pursue the original claims in this and other applications.

In the "Response to Arguments" section, the Office Action asserts that "in response to applicant's argument that the image functions are different, a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art." Office Action, page 2. The Office Action also adds that if the "prior structure is capable of performing the intended use, then it meets the claim." Office Action, page 2. Applicant respectfully submits that the claims are not directed toward an "intended use," but toward an apparatus for producing a specified circuit.

Specifically, the claimed apparatus, as embodied by independent claims 1, 23, and 34, includes an image information device for capturing image information of a semiconductor wafer substrate before droplets of raw sealant is discharged onto the substrate. Furthermore, the image information device is configured to provide the image information to a control unit. The control unit calculates a position for discharging droplets of raw sealant resin on a first surface of the substrate based upon the image information. The control unit, therefore, performs the calculation to determine where the droplets of raw sealant resin should be discharged. As such, the limitations of claims 1, 23, and 34 define a structure which is different from that disclosed in the cited references.

Claims 1, 2, 6-8, 10, 11, 23, 24, 28-30, and 32-33 stand rejected under 35 USC 102(b) as being anticipated by U.S. Patent No. 5,711,989 to Ciardella. Claims 4, 26, 34-36, 38 and 40 stand rejected under 35 USC 103(a) as being unpatentable over Ciardella in view of U.S. Patent No. 5,906,682 to Bouras. The rejections are respectfully traversed.

As amended, claim 1 recites an apparatus comprising, *inter alia*, "an image information device for capturing image information of said semiconductor wafer substrate prior to said raw sealant resin being discharged from said discharging mechanism; said image

information device configured to provide said image information to said control unit, wherein said control unit is constructed to calculate a position based on said image information for said drive mechanism to displace said at least one of said semiconductor wafer substrate and said discharging nozzle, and for said discharging mechanism to discharge said droplets of raw sealant resin on said first surface of said semiconductor wafer substrate excluding said at least a portion of said electrode."

Similarly, amended claim 23, recites an apparatus comprising, *inter alia*, "means for capturing image information of said semiconductor wafer substrate prior to droplets of raw sealant resin being discharged by said discharging means; means for providing image information of said semiconductor wafer substrate; and means for calculating a position, based upon said image information, for said discharging mechanism to discharge said droplets of raw sealant resin on said first surface of said semiconductor wafer substrate excluding at least a portion of said electrode, and for said drive mechanism to displace at least one of said semiconductor wafer substrate and said discharging nozzle."

Similarly, amended claim 34 recites a semiconductor device manufacturing apparatus, comprising, *inter alia*, "an image information camera for capturing image information of said semiconductor wafer substrate prior to said raw sealant resin being discharged by said discharging head; said image information device configured to provide said image information of said semiconductor wafer substrate; and a control unit for controlling said discharging head and said drive mechanism, wherein said control unit is adapted to calculate a position, based on said image information, for said discharging head to discharge droplets of raw sealant resin on said semiconductor wafer substrate excluding said at least one electrode, and for said drive mechanism to displace said at least one of said semiconductor wafer substrate." Ciardella fails to disclose or suggest these limitation as recited in claims 1, 23, and 34.

Applicant respectfully submits that Ciardella discloses:

> CAD data from a disk or a computer integrated manufacturing (CIM) controller are utilized by the computer 18 to control the motion of the dot generator 12 through the motion controller 42. This ensures that the minute drops of adhesive are accurately placed on the printed circuit board 36 at predetermined locations. In applications where CAD data is not available, the software utilized

> by the computer 18 allows for the locations of the dots to be directly programmed. The computer 18 utilizes the X and Y locations, the component types and the component orientations to determine where and how many drops of adhesive to dispense onto the upper surface of the circuit board 36. The computer 18 automatically assigns dot sizes to specific components based on the user specifications or component library. The path for dispensing the minute drops of adhesive is optimized by aligning the in-line points.

Ciardella, col. 4, lines 52-67. Ciardella discloses that the location of where drops of adhesive are to be dispensed are inputted as either CAD data or part of data directly programmed into a computer, both of which requires a user to input the data. Applicant respectfully submits that Ciardella does not disclose or suggest the limitations of the claimed invention, specifically (1) that an "an image information device for capturing image information of said semiconductor wafer substrate prior to said raw sealant resin being discharged from said discharging mechanism" and (2) that the "image information device [is] configured to provide said image information to said control unit" to determine locations where raw sealant of resin should be discharged onto the semiconductor wafer substrate, as recited in claim 1, and similarly in claims 23 and 34.

In fact, Ciardella discloses a video camera determining a location of a selected dot already dispensed onto the circuit board. Ciardella, col. 4, lines 34-41. Particularly, Ciardella discloses that the "video camera and LED light ring assembly 16 are connected to the dot generator 12 for motion along the X, Y and Z axes to inspect dots and locate reference fiducial points." Ciardella, col. 2, lines 52-56. As such, in the Ciardella system, the video camera is not used to determine a position prior to dispensing a dot onto the circuit board. For this feature, Ciardella discloses use of CAD data or data directly inputted by a user, which is a manual process, and is not the same as the inventions of claims 1, 23, and 34. Applicant respectfully submits that Ciardella fails to disclose an apparatus comprising an "image information device [that] captures image information of said semiconductor wafer substrate prior to said raw sealant resin being discharged onto said first surface of said semiconductor wafer substrate," as recited by claims 1 and 34, and similarly claim 23.

Applicant respectfully submits that Bouras also fails to disclose an image information device as recited by claims 1, 23, and 34. The Office Action states that Bouras is

merely being relied upon for details as to the temperature controller, and to show that it would be obvious that Ciardella can handle the substrates in Bouras. Nevertheless, these relied upon details of Bouras are insufficient to cure the deficiencies of Ciardella. Bouras does not disclose, teach or suggest "an image information device for capturing image information of said semiconductor wafer substrate prior to said raw sealant resin being discharged from said discharging mechanism; [and that] said image information device [is] configured to provide said image information to said control unit," as recited by claim 1, and similarly claims 23 and 34. Accordingly, neither of the cited references, whether considered alone or in combination teach or suggest the claimed invention as embodied by the unique combination of elements recited by independent claims 1, 23, and 34.

Each of the dependent claims 2, 4, 6-8, 10, 11, 24, 26, 28-30, 32-36, 38, and 40 depend from independent claims 1, 23, and 34, respectively, and contain all of the limitations recited therein. Accordingly, for at least these reasons, withdrawal of the rejections is respectfully requested.

Claims 3, 5, 25, 27, 31, and 37 stand rejected under 35 USC 103(a) as being unpatentable over Ciardella in view of Bouras, and further in view of Nakazawa(U.S. Patent No. 5,935, 375). The rejection is respectfully traversed.

Claims 3 and 5 depend from claim 1. Claims 25, 27 and 31 depend from claim 23. Claim 37 depends from claim 34. As previously discussed, the combination of Ciardella and Bouras fails to disclose, teach, or suggest the subject matter of independent claims 1, 23 and 34.

Applicant respectfully submits that Nakazawa fails to cure the deficiencies of Ciardella and Bouras. Nakazawa relates to an apparatus for manufacturing a semiconductor package of the type in which a gap between a semiconductor chip and a mount board is filled with a resin. Nakazawa does not disclose or suggest "an image information device for capturing image information of said semiconductor wafer substrate prior to said raw sealant resin being discharged from said discharging mechanism; [and that] said image information device [is] configured to provide said image information to said control unit," as recited by claim 1, and similarly claims 23 and 34. As such, Ciardella, Bouras, and Nakazawa, whether considered

alone or in combination fail to disclose the subject matter of claims 3, 5, 25, 27, 31, and 37. Applicant respectfully requests the withdrawal of the rejection and allowance of the claims.

Claims 5, 9, 27, 31, and 39 stand rejected under 35 USC 103(a) as being unpatentable over Ciardella in view of Bouras, and further in view of Prentice (U.S. Patent No. 6,007,631). The rejection is respectfully traversed.

Claims 5 and 9 depend from claim 1. Claims 27 and 31 depend from claim 23. Claim 39 depends from claim 34. As previously discussed, the combination of Ciardella and Bouras fails to disclose, teach, or suggest the subject matter of independent claims 1, 23 and 34.

Applicant respectfully submits that Prentice fails to cure the deficiencies of Ciardella and Bouras. Prentice relates to a multiple head dispensing system having independently controlled dispensing heads. Prentice does not disclose or suggest "an image information device for capturing image information of said semiconductor wafer substrate prior to said raw sealant resin being discharged from said discharging mechanism; [and that] said image information device [is] configured to provide said image information to said control unit," as recited by claim 1, and similarly claims 23 and 34. As such, Ciardella, Bouras, and Prentice, whether considered alone or in combination fail to disclose the subject matter of claims 5, 9, 27, 31, and 39. Applicant respectfully requests the withdrawal of the rejection and allowance of the claims.

Claims 5, 9, 27, 31, and 39 stand rejected under 35 USC 103(a) as being unpatentable over Ciardella in view of Bouras, and further in view of Cavallaro (U.S. Patent No. 6,017,392). The rejection is respectfully traversed.

Claims 5 and 9 depend from claim 1. Claims 27 and 31 depend from claim 23. Claim 39 depends from claim 34. As previously discussed, the combination of Ciardella and Bouras fails to disclose, teach, or suggest the subject matter of independent claims 1, 23 and 34.

Applicant respectfully submits that Cavallaro fails to cure the deficiencies of Ciardella and Bouras. Cavallaro relates to a liquid dispensing system having multiple dispensing cartridges incorporated into a single housing and selectively actuated with a single motor. (Cavallao, col. 2, line 51-54). Cavallaro does not disclose or suggest "an image information device for capturing image information of said semiconductor wafer substrate prior to said raw

sealant resin being discharged from said discharging mechanism; [and that] said image information device [is] configured to provide said image information to said control unit," as recited by claim 1, and similarly claims 23 and 34. As such, Ciardella, Bouras, and Cavallaro, whether considered alone or in combination fail to disclose the subject matter of claims 5, 9, 27, 31, and 39. Applicant respectfully requests the withdrawal of the rejection and allowance of the claims.

In view of the above amendment, Applicant believes the pending application is in condition for allowance.

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Respectfully submitted,

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